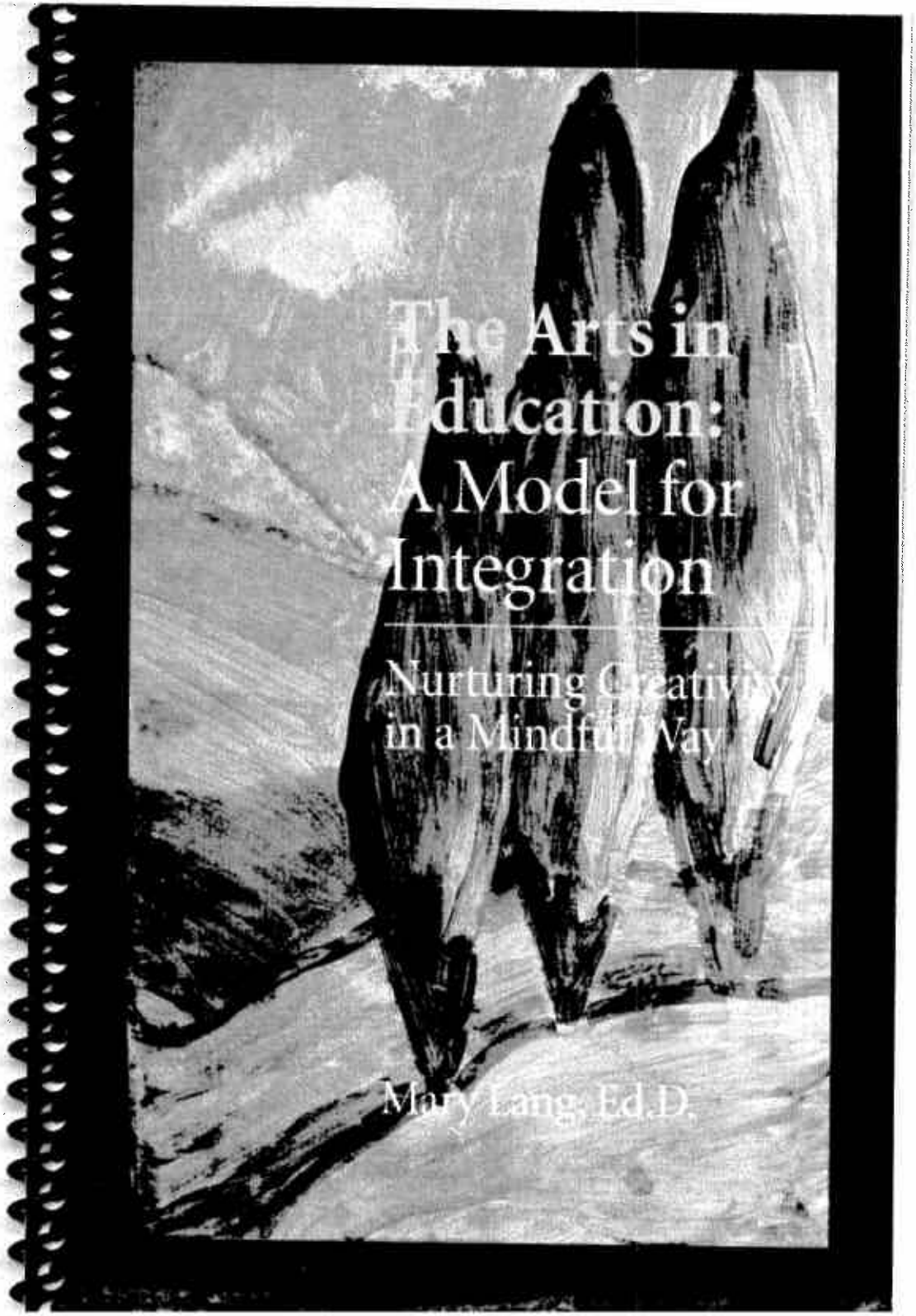
The Arts in Education:
A Model for Integration
Nurturing Creativity in a Mindful Way
Mary Lang, Ed.D.

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Nurturing Creativity in a Mindful Way

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There are many people to thank for the experiences that contributed to the writing of this book. Thank you to the students and parents of the Moscow Charter School who have supported the school and the unique curriculum. My sincere appreciation is expressed to Sue Congleton for helping me develop the vision over many years that resulted in the described arts program. A very special thanks to Mike Rosgen, a talented and gifted musician who shares my vision of nurturing creativity in children and who created a companion book of original songs. Thank you to Carolyn Burman, the art teacher at the Moscow Charter School. Many thanks to Ginny Sutfin, a talented theater teacher and scriptwriter who wrote a companion book of original scripts. I would also like to extend a special thanks to Sandra Noland, principal of the Moscow Charter School and all of the teachers who contribute to its uniqueness including Stacy Albrecht, Ibe Cole, Jan Valdes, Matt Wysock, and Janet Tillman. Thank you to Melissa Rockwood for designing this book. Thank you to Julie Monroe for "going with the flow" during the editing process. Finally, my deepest appreciation goes to my husband Joe Thompson for sharing my vision and my parents for teaching me to value children.

To my children Dylan and Quinn, my reason for being passionate about nurturing creativity.

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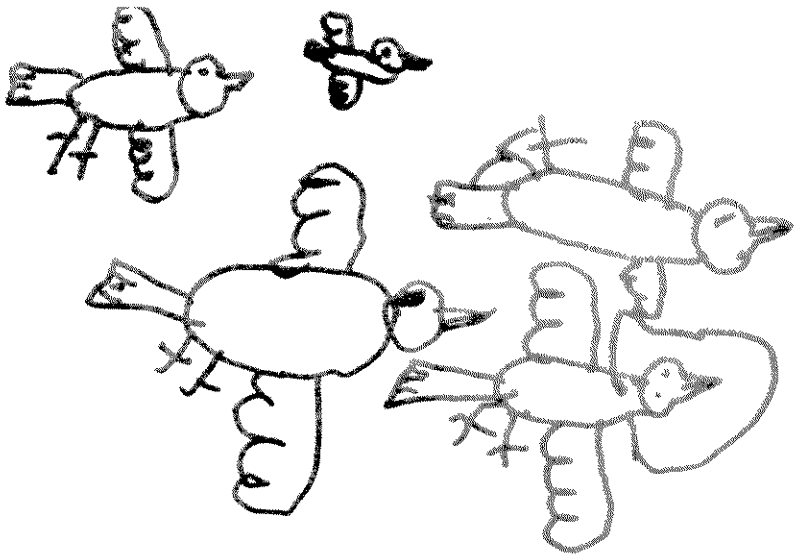


Introduction

The Moscow Charter School in Moscow, Idaho, is an accredited elementary public school serving kindergarten through sixth grade children. The school provides an educational alternative for Moscow's parents. In 1997, with 25 years' experience as an educator at all levels of education—from pre-school to university—I wrote the charter for the Moscow Charter School, the first charter school in Idaho; I have served as its executive director since then. We at the Moscow Charter School believe that children's social, intellectual, and motor development can be enhanced through a stimulating, well-rounded, hands-on, minds-on program. Our teachers focus on teaching basic academic skills, creativity, and problem-solving. Our students are taught to be efficient and independent learners. We believe that teaching each child to recognize the skills and techniques that fit their unique style of learning can accelerate learning.

Our educational philosophy is brought to life by means of our unique approach to curriculum. Each year we incorporate a single theme that emphasizes environmental and global awareness into the curriculum. With this theme as our reference point, our teachers and students participate in a creative process that sets our school apart from other types of schools. At the Moscow Charter School, we have integrated the arts – visual art, music, dance, theater – with the instruction of basic skills, such as mathematics and science. This creative process culminates at the end of the school year in a theater production of an original drama based on what the students have learned about the theme.

Overseeing the implementation of our distinctive curriculum for the past five years has been an tremendous learning experience for me, as an educator, as an administrator, and as a parent with children in the elementary grades. Convinced that other educators and administrators, as well as parents, would benefit

from our experiences and observations at the [illegible] Charter School, I was inspired to write this book.

I hope this book will serve several purposes. I hope it will show educators that early training in the arts may be an extremely effective teaching tool for developing successful intelligence and behaviors in their students. For this reason, I have included a comprehensive description of the curriculum model we have used for the past five years at the Moscow Charter School. In the Appendix, there is also a sample topic outline.

In addition to educators, I hope this book will also be useful for parents. Today's parents often face what can be a bewildering choice of educational options for their children – traditional public school, charter schools, private schools, homeschooling, even cyber schools. By synthesizing current educational literature regarding the identification and structuring of enriching instructional techniques and learning environments, I have attempted to provide parents with information that will help them make sound educational choices for their children.

This book is for both parents and educators because they share the common task of preparing children for successful and happy lives as adults in the 21st century. I hope this book will play an essential role in achieving this important goal.

Education is a Tool

Futurists agree that life in the Information Age will require a different set of behaviors for professional success than in previous generations. The pace of change in all areas of our lives continues at an ever increasing rate. Statistics suggest that today's adults change jobs every five to ten years and that the average individual will change careers at least two times, probably more, in a lifetime. Many educators predict that professional flexibility, the ability to manage information, and the ability to view change as positive may be three of the most important skills to be taught in today's educational system (Gardner 1999). It has been suggested that children should be taught that their professional skills could become obsolete in early adulthood and that they should be intellectually prepared to change professions by the time they enter the workforce. This book examines concepts, theories, and research supporting methods of instruction that develop skills and abilities for success in the 21st century.

A proficient learning ability and professional choice are the ultimate gifts that parents can give to their children. These gifts are bestowed through the form of education parents choose for their children and other forms of enrichment they provide through daily experiences. A good education gives children choices when they enter adulthood and the professional world. It will continue to serve them as they prepare to change jobs or professions, and in the current conditions of corporate downsizing and mergers, most individuals will need to be skilled in a variety of areas and be able to maintain their confidence and composure throughout periods of rapid change.

The purpose of this book is to show that early training in the arts is an excellent teaching tool to help the children we are educating today develop successful intelligence in the rapidly-changing world of the 21st century. Educational researchers share this conclusion and in this book, I have summarized literature related

to expanding student potential, defining an [illegible] individual, the role of standardized testing, and the concept of [illegible] learning, and creative intelligence. I have further examined a brain-based learning approach and the importance of [illegible] enrichment, emotional involvement, and meaning in a learning environment.

Most importantly, this book presents a model for integrating the arts into academic curriculums. At the Moscow Charter School, we have searched for innovative methods to maximize the outcomes of our academic programs and to prepare students for professional choice and creativity in adulthood. In the process of developing this model, we researched behaviors and experiences that provide enrichment to the learner and lead to professional success. This research, coupled with our observations during five years of designing and implementing an integrated arts program that emphasizes creative thinking, has resulted in the model described in this book.

In our program, we have taken the traditional arts curriculum one step further by encouraging all of our students to participate in the creative process of developing original art, music, dance and theater performances in collaboration with their teachers. The Moscow Charter School has integrated arts into its standard curriculum as a method to improve the quality of the learning environment and to teach students both academic and non-academic behaviors that lead to success. This model encourages classroom teachers to work across disciplines in the presentation of academic material. It provides students with an enriching and varied context for learning factual information and improving thinking skills. Furthermore, it encourages students to achieve levels of excellence that might not have been originally anticipated. This, in addition to what educators now know about the learning brain, leads us to believe that early and continued training in the arts lays a foundation of enrichment and brain development for each child that can easily generalize to "successful behaviors" in the real world.

Expanding Student Potential for Success

As we transition into a new century, parents will have to make critical choices to insure that their children receive an education that contributes to professional success. Before the dawning of the Information Age, communities offered assistance in rearing a child as most students attended the local public school system. Today's parents have a wide variety of educational choices from charter schools, home school and private schools to cyber schools. Fragmentation in today's society creates a situation where parents are often on their own in providing the tremendous amount of energy and decision-making that it takes to raise a responsible child. This includes creating an environment that contains a quality, progressive education and lays a foundation for professional choice and success in the 21st century.

Initially, parents define success for their children and each parent defines success differently. Parents who are living vicariously through their children and are highly concerned with status may want them to concentrate on professions such as politics, law or medicine. Others are focused only on income and wealth. Some parents just want their children to be happy.

But in America today, at every level of education, educators and their institutions are defining success on the basis of standardized test scores alone. Some educators are suggesting there is no validity in this practice particularly if we look closely at the components of successful intelligence (Sternberg 1997, Goleman 1995, Gardner 1999). Analytical intelligence is the primary feature measured by standardized tests but it is only one component of successful intelligence. Yet most educational institutions use it as a primary predictor of successful achievement. In regard to intelligence testing, Sternberg's research demonstrates that standardized tests measure aspects of intelligence that are not of great importance to real-life success.

Moreover, educators are rarely trained at the post secondary level

to compare curriculum goals to characteristics of successful intelligence, the type of intelligence that allows us to make a difference in our society. If this type of intelligence was encouraged, teachers would exhibit a wider tolerance for students who do not fit the norm, and elementary curriculums would be more eclectic in nature than they are today.

In his book *Successful Intelligence*, Sternberg challenges the notion that successfully intelligent people can be identified by standardized tests. He defines successful intelligence as the ability to achieve what will make a difference to you and others. It separates those who just achieve from those who excel and ultimately it is successful intelligence that educators should seek to nurture in their students. According to Sternberg, successful intelligence has three major components: analytical, creative and practical. Successfully intelligent people are individuals who are strong in all three areas and are able to strike a balance among them. Knowing exactly when to use each type of intelligence is of utmost importance and may depend on intuitive thinking, a skill that is possible to nurture.

Sternberg says that, "schools tend to reward abilities that later in life are not very important."[1] His statement is based on the fact that today's schools have curriculums that use well-structured problems that require analytical intelligence to solve. Well-structured problems are problems with clear paths to their solutions. In contrast, ill- structured problems are those without clear paths to solutions. Real world problems are generally ill-structured problems. While analytical intelligence is important in solving well-structured problems, when measured alone it is no guarantee of academic success or survival in a non-academic world. Yet, this is precisely what is being reported by most public school systems.

Based on his research, Sternberg has identified twenty characteristics that define a successful individual. These characteristics describe successfully intelligent people as individuals who:

- motivate themselves.
- learn to control their impulses.

- know when to persevere.
- know how to make the most of their abilities.
- translate thought into action.
- have a product orientation.
- complete tasks and follow through.
- are initiators.
- are not afraid to risk failure.
- don't procrastinate.
- accept fair blame.
- reject self-pity.
- are independent.
- seek to surmount personal difficulties.
- focus and concentrate to achieve their goals.
- have the ability to delay gratification.
- have the ability to see the forest and the trees.
- have a reasonable amount of self-confidence and belief in their ability to accomplish their goals.
- spread themselves neither too thin nor too thick.
- balance analytical, creative and practical thinking.

It is interesting to note that all of these characteristics are unrelated to the memorization of specific facts. Sternberg's research demonstrates that those who recall facts or can reason with facts do not necessarily know how to use them to make a difference in society or in the ability to succeed.

The notion that professional success is more a function of psychological characteristics than known facts is not even recognized in the accountability mechanism at all levels of our current public educational system, even though educators currently have enough data from brain-based learning research to call for a redesign of curriculums. Furthermore, this data is neither welcomed nor universally accepted by traditional public school systems. Brain based learning research has demonstrated that material is learned most effectively when it is presented through multiple modalities and when the student experiences emotion during the learning process. Many

public and private school systems, however, [illegible] pre-designed, narrowly-focused basic skills [illegible] based on drill and practice of factual information [illegible] predominate substance of their curriculums.

At the Moscow Charter School we have seen how [illegible] programming in visual art, music, dance, and theater is an effective tool for teaching psychological behaviors, such as discipline, risking failure, creative thinking, following through, maximizing strengths and minimizing weaknesses. Furthermore, we have observed that arts programming can be used to enhance the learning of material taught in more formal settings. It is a tool that teaches sophisticated conceptual and factual material as well as psychological characteristics, such as maintaining control over the creative process while expressing important ideas. We have also observed that many of the characteristics defined by Sternberg can be taught or encouraged in this sort of creative curriculum. Indeed, an arts curriculum that includes visual art, music, dance, and theater appears to be the optimal environment for many of these characteristics. Encouraging students to participate in the creative process generates creative thinking—an important skill in a rapidly-changing world environment.

Our conclusions are based on our experience in implementing a unique teaching methodology at the Moscow Charter School that integrates the arts with a basic education. Each year the entire school chooses a theme that will be explored for an entire year. For example, one year we chose the Mars Millennium Project as our theme. The Mars Millennium Project was sponsored by the National Aeronautics and Space Administration to build a space station on the planet Mars by the year 2030. Our students explored this theme by studying information about a biosphere community, the solar system, the current technology of space travel, and viewing videotapes of NASA scientists discussing some of the engineering problems they would encounter when attempting to build a community on a rock landscape. Students also theorized about the psychological problems that individuals would encounter developing a closed community on a planet with no

breathable oxygen. In a creative writing exercise, students were asked to write essays about things they would sneak on board a spaceship if their family had been chosen to be one of the first families to inhabit the Martian community. Our exploration of this year-long theme culminated in a theater script, written by students and teachers, which integrated factual information with the students' fantasies of sneaking dogs onto the spaceship and communicating with aliens. The script was the basis for the production of an original drama. The drama was based on what the students had learned about the Mars Millennium Project during the year, and was not only a tool for reinforcing their learning, but also taught them, especially the older students with major parts, the necessary discipline to participate in the creative process from beginning to end.

Defining an Educated Individual

Although many aspects of our society are based on ancient Greek culture, the modern notion of formal schooling as mastering notations and disciplines in a remote setting is far removed from the original Greek definition of an educated person. For the ancient Greeks, an educated individual was one who was developed in every area including knowledge, courage, loyalty, and physical strength. A well-developed and educated Greek individual maintained a holistic sense of beauty in body and in spirit.

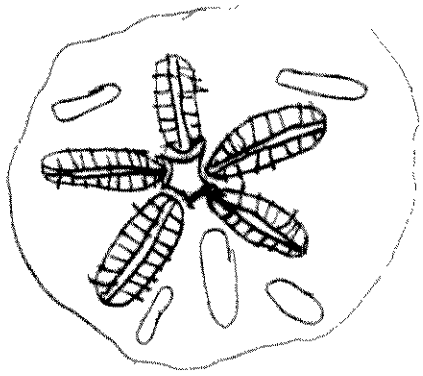
Over time, cultures fell away from this holistic view and began making strong distinctions between romantic and scientific thinking, especially in their educational programs. The romantic mode of thinking is characterized by imaginative, creative, and intuitive thinking, while reason and concrete laws dominate the scientific mode. Although both views of the world are legitimate, modern educational systems over the past centuries have been locked into one of the two camps, with a majority view being held by proponents of the scientific method.

Proponents of one side or the other fail to realize that integrating the two views enhances and accelerates the learning environment. In *The Disciplined Mind*, Howard Gardner suggests that educators should focus on three topics that truly educated individuals should understand in fullness: truth, beauty, and morality. He maintains that this focus, with its origin in the beliefs of ancient Greece, would be more in line with the values of our new century. Current research data on how the brain learns gives scientific credence to this focus and provides educators with important information to justify changing traditional education delivery systems to more holistic ones.

In addition, an understanding of how the brain learns may be bringing civilization full circle once again by recognizing the value of a holistic view of intelligence, learning, thinking, and memory

(Diamond & Hopson 1999). This view is based on natural laws of how the brain learns, and acknowledges the importance of using intuition in the learning environment. These findings justify the creation of an integrated arts program as a legitimate and central portion of our educational curriculums.

Another holistic approach to learning and the learning environment is based on the theory of multiple intelligences. As a result of the research of Howard Gardner, there is a movement at the forefront of educational theory that challenges the traditional notions of intelligence. In *Frames of Mind*, Howard Gardener suggests that all individuals have at least five different types of intelligence, including; musical, bodily kinesthetic, logical, mathematical, verbal-linguistic, spatial, interpersonal, and intrapersonal. The theory of multiple intelligences supports using the arts as a tool in education because a well-rounded arts program touches every modality described by Gardner. In particular, the use of drama encompasses several modalities (spatial, kinesthetic, verbal, inter and intrapersonal, and musical). Furthermore, drama can bring subjects to life for several different types of learners.



The Role of Standardized Testing

While there is evidence to support a holistic approach to education, today's politicians are instead grappling with the notion of accountability for the nation's public school system. While measuring basic academic skills is a necessity from time to time, politicians who support the notion of repeated state standardized testing from year to year are creating an educational environment that teaches to the test. Declaring that this form of testing actually presents a well-rounded picture of a student's intellectual strengths as they apply to a real world environment, is a travesty, especially for individuals who have a specific learning disability or test anxiety.

Furthermore, evidence points to the notion that standardized tests measure only analytical skills or the ability to reason with facts. Analytical skills, while good predictors of school success, are not necessarily related to success in other environments. An environment that focuses on teaching to the test, with its emphasis on developing analytical skills, includes greater periods of time spent on the linear presentation of basic skills. Educators who are caught up in this conflict often feel that longer school days and repeated presentation of factual information in a linear way are the only responses to the political and professional pressure to insure that students perform well on these standardized tests.

Also, state failure to properly fund public education has led to a gradual elimination of arts programs in many public schools. When the arts are the first to be slashed in a public school budget, both politicians and educators in administrative positions demonstrate an unfortunate cultural priority. By analyzing the skills that are taught through arts education, we discover that training in the arts actually enhances intellectual development and accelerates learning ability on all levels. Based on our experience at the Moscow Charter School, we believe that training in the arts makes students creatively and educationally diverse and enhances and

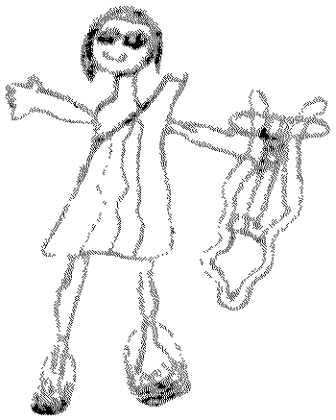
develops skills that may help them function successfully in the 21st century but that cannot necessarily be measured on standardized tests. Consistent and broad training in the arts throughout early childhood with an emphasis on creativity also enables students to become more efficient learners, thus reducing the amount of time they need for drill and practice.

The fallacy of using standardized test scores as a predictor of successful performance is supported by Daniel Goleman in *Emotional Intelligence* and Howard Gardner in *Frames of Mind*. They suggest that successful individuals, who may or may not succeed on conventional tests, are, more importantly, able to capitalize on their strengths and compensate for their weaknesses. Also, according to Sternberg, successfully intelligent people defy negative expectations. They realize that surmounting obstacles is part of the challenge in achieving their goals. These kinds of characteristics that define successful people are impossible to measure on standardized tests.

At the Moscow Charter School, we believe that a firm foundation in basic skills and analytical thinking is necessary to achieve professional success. We also believe that accountability in the form of standardized testing is important. We do recognize, however, that the current method of reporting standardized test scores, which relate only to factual information and analytical skills, allows schools to make sweeping generalizations about the overall intelligence of students.

We further acknowledge that professional success is significantly related to a set of psychological behaviors and it is equally important to analyze them in a school setting. We also view intelligence as modifiable. We question whether a single-minded focus on rote learning and memorization of information throughout the K-6th curriculum will adequately prepare students for a professional life in which information in any given area can be obsolete in less than a decade. Schools that emphasize rote memorization and linear presentation of abstract facts may be presenting information in an inefficient and difficult way that may also fail to take advantage of critical periods of learning time.

Our observations support Sternberg's findings that successful intelligence is a balance of knowing when and how to use analytical, creative, and practical abilities. We further believe that through a wide variety of life experiences individuals can learn to develop these abilities in a balanced way and that skills needed to function successfully in the 21st century cannot be measured on standardized tests. As we begin to understand the direction that society is headed in this century, professional educators need to create new criteria, which allows us to measure success in the professional arena. We also need to define curriculum tools that help us reach those criteria.



Mindful Learning

During the Industrial Era, a premium was placed on rote learning; in fact, public and private school systems in America were based on rote learning, with the exception of a few unique educational programs, such as Montessori and Waldorf schools. Today, we are at the crossroads of change in our curriculum delivery system as evidenced by the origination and growth of charter schools and vouchers, and we need to realize that over-learning or rote learning has inherent dangers in the Information Age.

In *The Power of Mindful Learning*, Ellen Langer writes that all skill should be learned "mindfully." Learning information mindfully means that we remain open to ways in which information may differ in various situations. Being aware of subtle changes in all of life's circumstances may be one of the most important features of being successfully intelligent.

Langer warns that over-learning the basics works against the use of information in a mindful way. She has proven through a variety of research studies that over-learning information prevents an individual from creating new solutions to problems. She suggests that our educational curriculums should use a mindful approach to teaching even the most mundane tasks. Her definition of mindfulness implies the continuous creation of new categories, openness to new information, and an implicit awareness of more than one perspective. Ms. Langer's research demonstrates how teachers can, with only minor changes to a traditional curriculum, introduce every skill in a way that will enable students to learn it "mindfully."

In her research, Langer has demonstrated that, in comparison to rote learning, mindful learning experiences greatly improve student retention for a variety of topics. Langer's research also has some important things to say about the perception of paying attention. In a research study in which she queried teachers and

students about paying attention, she discovered that teachers and students viewed paying attention as a matter of focusing on moving stimuli, which is, in fact, impossible. In reality, attention means concentrating on a changing stimulus. Research demonstrates that it is natural for the mind to wander. Attempting to maintain attention by holding on to a single stimulus is extremely fatiguing. The most effective way to increase our ability to pay attention is to train our mind to look for novelty within the stimulus situation. Novelty has to be in the mind of the observer for attention to occur.

Daily rote drills and information presented in a non-creative way actually decrease novelty in the learning environment for young children. It is interesting to speculate that overuse of traditional curriculums based on a series of workbook activities may actually prevent the student from learning most effectively. In contrast, a well-rounded arts education with an emphasis on creativity offers the perfect avenue for mindful learning. In fact, it may be the teaching tool of choice in that it presents a conducive learning environment for both groups and individuals. An arts program can teach conceptual and factual information and easily facilitate the creation of new solutions. With the Moscow Charter School arts programming, there are a variety of opportunities that provide students with the experience of working in groups. For example, in art and dance class, individuals use pictures and movement to illustrate an expression of a concept. In dance class, students might be asked to create movements that illustrate a Martian windstorm. The movements generated by the students can then be used in a final choreography developed by the instructor.

Creative Intelligence

Throughout history many famous individuals like Aristotle, Michelangelo, Leonardo De Vinci, Nikola Tesla, Thomas Jefferson and Albert Einstein have embodied creative intelligence. Sternberg defines creativity as a process that requires the balance and application of the three aspects of intelligence: creative, analytical and practical. He views creativity as the bridge between analytical intelligence and practical intelligence with the central span of the bridge being creative intelligence. He says, "The person who is high only in creative intelligence may come up with innovative ideas but will not recognize which are good ones. The person who is high only in analytical intelligence may be an excellent critic of other people's ideas but is not likely to generate creative ideas of his or her own. The person who is high only in practical intelligence may be an excellent salesperson but will be as likely to sell ideas (or products) of little or no value as to sell genuinely creative ones."[7]

The notion that creativity is the connector to analytical and practical intelligence encourages educators to give this component equal weight in curriculum development. Educators should search for innovative techniques to teach and nurture creativity for 21st century students. Including creativity as a variable in the evaluation of students may give us unsuspected insight into each student's personality and learning style.

At the Moscow Charter School, we have observed that if training in the arts is started in kindergarten, a child's natural ability to think creatively can be nurtured and refined. By starting programs in the early years, which are most critical for brain development, an enriching environment for creative thinking is maintained instead of re-learned after years of disuse. By providing a comprehensive and integrated arts program, we also create opportunities for the faculty to think creatively, and this dimin-

ishes the boredom of presenting informati[illegible] fashion from year to year. With our model of drama[illegible] theme of study, students are given the opportun[illegible] involved in the creative process of developing work[illegible] dance, and theater, while working with the theme. [illegible] em-phasize research of the theme and art class[illegible] to the free-form expression of what is learned about it.

With our model, students focus on researching a theme, and writing stories, fables and poems about it during the fall semester. The faculty and students then come up with an outline for a theater program that is written during the school year and presented before school ends. This process enables the entire faculty and student body to be involved in the creative process together and redefines the reciprocal relationship between student and teacher by allowing the relationship to shift back and forth between individuals.

By working together to generate creative ideas and carry them through to the production stage, students learn valuable, real world lessons about group planning. For example, one year teachers and students brainstormed a variety of ideas for a theater production theme, but because only some of the ideas were selected for the production, some students were angry because their ideas were not used. This presented the opportunity for teachers to explain that when professionals work together they must choose those ideas that offer the best set of solutions. By teaching creativity through the arts, we are providing an excellent environment for presenting these types of lessons.

A Brain-Based Approach

It is our belief at the Moscow Charter School that young children naturally think creatively. Brain-based research is finding that educators can accelerate and enhance learning by offering enriching opportunities during "periods of readiness" that naturally occur in the development of the human brain. Research is indicating that, in some instances, learning appears to happen spontaneously if the learned material is presented during periods when the brain is "ripe" for receiving information. It is commonly accepted among educators that during a person's lifetime, the most receptive period for learning is between birth and 12 years of age.

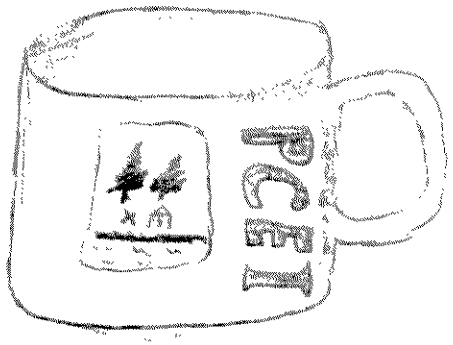
Examples of these findings are seen in research on bilingual children. Studies have demonstrated that if a child learns a foreign language before the age of seven, the brain stores the language learned in the same area as the native language. However, after the age of seven, foreign languages are stored in a different area of the brain than the native language. Learning a second language becomes progressively more difficult each year if the learner is over the age of seven.

The Suzuki music method also takes advantage of these "windows of time" by starting students playing instruments at an early age. This music method instructs the parent to repeatedly play a tape containing the songs to be learned by the child in the background throughout the day. This information is presented almost subliminally to the young child in a repetitive manner, and the child learns to process the song auditorily during a period of time when the brain is ripe for learning and before learning how to play it.

Consistently incorporating the arts into an early childhood or elementary-aged learning environment enhances learning in all areas and builds or strengthens neural synapses that already exist. Encouraging creativity through the arts enables students to build

upon their innate ability to think and learn [illegible].

Also, brain-based learning supports the [illegible] understanding and retention can occur when [illegible] modalities are stimulated. At the Moscow Charter [illegible] discovered that arts education is a teaching tool that [illegible] modalities including musical, bodily (dance), logical, visual-spatial (visual art), interpersonal and intrapersonal (theater). We have used this knowledge to design a curriculum that includes teaching morals, intellectual concepts and factual information through visual art, music, dance, and theater. Giving equal weight to skills in the arts allows us to appreciate a child who may not have strength in verbal-linguistic abilities but may be strong in the area of bodily-kinesthetic. We can also teach students to compensate for their weak areas by presenting information through a strong area.



The Importance of Early Enrichment

In *The Disciplined Mind*, Howard Gardner lists seven findings based on the physiological development of the brain that are essential information for educators. Four of these findings support the notion of early enrichment as a method for enhancing or accelerating learning. When begun in the early years (pre-school and kindergarten) training in the arts doubles the power of the teaching tool. The four research findings that support early enrichment are summarized below:

1) The importance of early experience. All experiences matter, but those in early life have particular importance for later life. Ideally, an eclectic set of educational experiences should begin early in life to create a diverse learner (Diamond and Hopson 1999). At the Moscow Charter School, we begin teaching an entire range of classes in the basics and in the arts at the kindergarten level, including visual art, music, dance, and theater to take advantage of a child's natural ability to view problems holistically and to think creatively.

2) The imperative "use it or lose it." If neural connections are not created and stimulated by appropriate sensory perception and then used actively, these connections will eventually atrophy or be appropriated to other functions. This notion supports the presentation of an eclectic set of experiences over time. At the Moscow Charter School, we offer a full range of courses in the arts throughout the K-6th grade years to stimulate the neural connections that contribute to successful intelligence.

3) The early nervous system is very flexible (plastic). Young children can thrive and survive even if they are missing large portions of the nervous system. Research has shown that these areas can compensate if trauma occurs. As we age our brain becomes less flexible and less able to compensate for lost ca-

pacities and functions. Studies on individuals suffering from aphasia suggest that recovery in older adults is more certain and greater in scope if the individual has had training in music. Training in the arts along with traditional academic training stimulates more areas of the brain than does traditional academic training alone. This information underscores the importance of an early, quality education to improve intellectual functioning in adulthood.

4) The possible organizing role played by music. A number of studies suggest that learning a musical instrument early in life enhances other learning areas including those valued in school, such as math. In fact, studies have also shown that stimulation of a fetus with music and the human voice can accelerate early development stages after the baby is born (Diamond and Hopson 1998).

Emotion and Meaning in a Learning Environment

Participating in the arts creates an emotional experience that transcends the logical presentation of information. Artistic expression is based on the emotional interaction and involvement between the subject and the topic. In *Accelerated Learning*, Colin Rose describes 25 years of research that has led to the development of techniques that present information to both the unconscious and conscious mind. Rose investigated a combination of techniques that would enhance the absorption of learned material in an effortless and accelerated way. This research shows that a learning environment that includes meaning and emotion between the learner and the material to be learned is essential to the effective retention of material.

A number of observations were made during the course of Rose's research that may be useful to curriculum delivery and lend support to integrating the arts in education. One of the most important findings in this area of research is that creating a situation in which students experience emotional involvement with a topic enhances learning and retention. Arts courses encompass several modalities (spatial, kinesthetic, verbal, inter and intra personal, and musical) and when they are used as vehicles for expression of learned material, the subjects come to life for several different types of learners. Other notable findings in this area of research support using the following techniques as described by Caine and Caine in their book *Making Connections: Teaching and the Human Brain*, to accelerate learning:

- *Relaxation:* Rhythmic breathing and creative visualization are the key to effective relaxation, and relaxation is the key to effective learning.
- *Music:* Classical music from the Baroque period of the early 18th century (especially with stringed instruments) was found

by Lazanov and others to have a profou[illegible]arning. The music is constructed 4/4 time with [illegible]minute. It is said to entrain the heartbeat and [illegible] to effect a physically relaxed yet mentally alert [illegible] researchers report significant improvement in learning [illegible] with the use of Baroque music (Jenson 1994).

- *Movement:* Inactivity can impair learning. In fact, while students need extensive mobility while learning. Those active learners encode information through a [illegible] and brain integration experience (Ostrander and Schroeder 1991). Exercises in cross body movement have been found to engage both sides of the brain.
- *Peripherals:* Learning is influenced in a positive way by the subconscious processing of surrounding peripherals (Jenson 1994). Colors, decoration, sound, smells, and other stimuli pertaining to the subject matter at hand can be used to take advantage of this phenomena.
- *Mentoring:* It has been discovered that for many learners, teaching the relevant material is a technique that provides high retention in the teacher (Rose 1987).

Caine and Caine's summary of brain-based findings add to the growing body of knowledge suggesting that educators need to move beyond simplistic, narrow approaches to teaching and learning. Findings which show that learning engages the entire physiology, that learning is enhanced by challenge and inhibited by threat, that emotions are critical for patterning, and that the brain remembers best when facts and skills are embedded in natural spatial memory, provide strong evidence for curriculum restructuring.

A Model For Integration

Based on our experiences at the Moscow Charter School, we believe that a broad, creativity based arts curriculum beginning early in a child's development should form an important segment of an elementary school curriculum. We further believe that comprehensive, early training in the arts, with an emphasis on creating original works, is a learning tool that will enable students to develop creativity and successful intelligence. We have seen that training in the arts at the elementary level stimulates brain development leading to creative and divergent thinking, which may aid individuals in making positive life choices and coping with change as adults in the Information Age.

Our ultimate curriculum goal is complete integration between the academic and a well-rounded arts program that focuses on creativity and problem-solving. With this type of curriculum, we attempt to develop all three components of intelligence: analytical, creative, and practical, during important windows of time for brain development.

To achieve this goal, we have defined three levels of integration of arts and academics:

1) The use of a year-long theme to provide a context of meaning for learning academic subjects and providing training in the arts. The theme is eclectic in nature and acts as the point of integration between academics and the arts. Through the theme, we focus on creativity and solving problems to enhance learning of particular subjects. Sample topics used at the school include Leonardo De Vinci, the Mars Millennium Project, the ancient Greeks (the history of western civilization) and Leaders and Cultures of the 20th century.

2) The facilitation of creative thinking and problem solving by encouraging students to be involved in the creative process at all levels. Students are encouraged to develop original works

in visual art, dance, and music that express [illegible] issues, and facts surrounding the theme.

3) The development of an original theater [illegible] on what we have learned about the year-long [illegible] theater production becomes a teaching tool to express [illegible] has been learned about academic material. At the same time, it also encourages creative expression by students. Incorporating a theater production into the curriculum allows for the holistic expression of various aspects of the theme including the consolidation and reinforcement of factual information.

At the Moscow Charter School, specialists in the areas of art, music, dance, theater, and storytelling assist classroom teachers in the design, refinement, and integration of the art curriculum into the academic program. Art professionals at the Moscow Charter School develop a program in which the art courses drive the outline of the year-long theme. This theme is also incorporated into academic classes. Using an outline of theme topics, academic classes research the theme. Art, music and dance classes focus on various forms of interpretive expression of the theme's topics, and the theater program provides an avenue for a final and integrated student expression of learned material.

The following process was developed at the Moscow Charter School to carry out our curriculum model:

- Initially, theme topics are brainstormed and voted upon by all faculty who work in a teaching capacity at the school in the previous year.
- A committee of teachers is formed to create a theme topic outline for the entire year. In the outline, suggestions are made to incorporate the outline topics into literature, math, science, and social studies and to encourage research of theme topics. (See a sample theme outline in Appendix).
- Introductory theme topics are put into a ten-week workshop format, and a professional storyteller is hired at the beginning of the year to introduce the theme topics through stories and writing exercises. Throughout the storytelling workshop, students produce essays and poems that will eventually be used to create a theater production at the end of the year.
- Following the storytelling workshop, teachers in art, music, dance and theater classes use the theme outline as a basis for lessons that allow students to interpret and to express the various concepts they are learning. For example, during the study of the ancient Greeks, students were asked to study and to create vessels and masks in visual arts class. In music class, they studied ancient Greek rhythms that they developed into original songs. This encouraged the expression of original ideas from the students. Ideas generated from the students may eventually be incorporated into dances, songs, backdrops, and illustrations to advertise the upcoming theater production.
- Throughout the academic school year, all teachers report and brainstorm about the theme at weekly meetings, and classroom teachers incorporate the outline of the theme into academic classes when appropriate. They also encourage students to research various aspects of the theme, sometimes at the request of an art or music teacher.
- In January, a committee is formed to write an original theater production incorporating the knowledge gained from the year-long study of the theme. This committee consists of the art, music, dance and theater teachers and other volunteer classroom teachers and students who are interested taking the project to the next level. The theater teacher is responsible for the final written product. The writing process usually takes about three months.
- The writing committee meets regularly from January through May. Ideas are frequently taken to the student body to brainstorm through a request for written essays on a particular topic or idea. Students who are interested in being writers or who are particularly creative are invited to the writing committee. This process encourages a reciprocal relationship between students and teachers. Music, dance, and theater teachers encour-

age students to generate creative ideas f[illegible] t.s.

- Original songs and dances are choreograp[illegible] and dance teacher using expressive materia[illegible] students to reflect knowledge that has [illegible] the theme. Original works of art are created [illegible] posters and programs.
- The theater production evolves into an original [illegible] production by March of the spring semester.
- In March, students begin rehearsals in the [illegible] and theater classes for the final theater produ[illegible]
- During the last week in May, the students travel daily to a theater on the University of Idaho campus to rehearse the production intensively. At the end of the week, the final production is performed for the school, parents, and the local community.

In the final days of school, students are asked to evaluate the artistic works that were created and to brainstorm ideas for the coming years.

Outcomes of an Integrated Arts Curriculum

As professional educators, we recognize that a comprehensive, integrated arts program can be used to enhance learning of all subjects and provides an in-depth component of enrichment to the student. At Moscow Charter School, we developed a program whereby classes in art, music, dance, and theater drive the study of a year-long theme topic. These classes follow a well-defined outline that is developed by the entire faculty of classroom teachers and specialists in the arts. This process allows for both the learning and expression of knowledge through multiple modalities.

Based on our experiences, we have observed that allowing students to participate in the creative process through a comprehensive arts curriculum further enhances student learning and outcomes in many unsuspected areas. These include continued refinement in the problem solving process, the discipline of taking an idea from the beginning through to the end, discovery of new talents and abilities, and increased self-esteem. In addition, by working cooperatively and equally with students, teachers are often more creative themselves. Additional outcomes include:

- A curriculum that uses art as a tool for teaching creative, analytical, and practical intelligence.
- The opportunity to experience the balancing of other forms of intelligence with analytical skills.
- The realization that a creative based, integrated arts program provides valuable experience in working together as a team and often results in works that were mutually created between student and teacher.
- Personal growth for both faculty and students.
- Students realize the importance of working together to solve

problems that are both hypothetical (theoretical) and real (factual).

- Students have an opportunity to seek answers on their own.
- Individual students have the opportunity to develop a well-rounded learning style and self-knowledge of their own learning strengths.
- Reinforcement of mindful learning in a variety of subjects and contexts.

The process we have developed enables the entire faculty and student body to be involved in the creative process together. It allows for flexibility in the reciprocal relationship between student and teacher by allowing the student-teacher relationship to shift back and forth. Teachers are sometimes encouraged to stop being experts and let students find answers on their own.

Summary

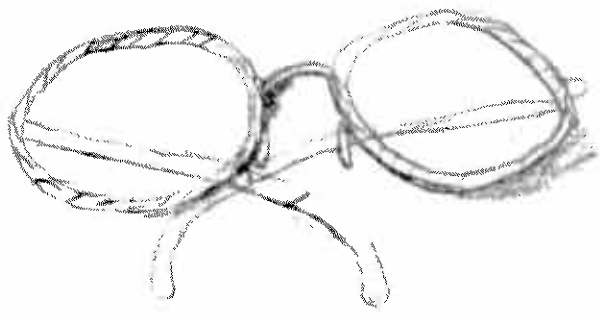
Over the past fifteen years, research on the learning brain has provided us with the information we need to provide a quality education for children. We now can identify and prioritize the skills that students will need to be successful in the Information Age and include them in curriculum designs. Furthermore, a number of variables have been identified that enhance and accelerate learning. These variables can easily be incorporated into a traditional system and used to make a connection between the data and the student. They include:

- Introducing information and concepts during critical periods of learning.
- Allowing students to learn information through a variety of modalities.
- Combining emotion with the learning experience.
- Using themes to attach meaning to learned material.

Training in the arts as part of a program of early enrichment can be a powerful tool for creating an effective learning environment. Schools that fail to offer a diverse curriculum which includes the arts, beginning in the early pre-school and kindergarten years, are losing valuable "windows" of learning time for their students. Schools that fail to offer diversity before the age of twelve are producing students with a narrow view of the world. In contrast, students who grow up with training in the arts not only have more diversity in thinking but also are more likely to use creativity in their lives, because they have had the opportunity to develop a greater appreciation for the arts.

Through an integrated arts and academic curriculum, students are encouraged to develop minds that can comprehend complex concepts. They gain experience reaching a group goal. They learn to use compassion in dealing with one another. Finally, students

are encouraged to take responsibility for their actions and risk failure. Training in the arts leads individual students to develop well-rounded learning styles and to gain self-knowledge of specific learning strengths, to think creatively and to solve problems. In addition, it teaches and encourages creative thinking and problem solving, necessary skills for 21st century success.



Appendix

Sample topic outline for Mars Millennium Theme

- Research planets and the solar system
- Understanding the planets in spatial terms
- Unique characteristics of the planet Mars
    - The atmosphere of Mars
    - The surface of Mars
    - The near-Mars surface
    - Chemistry on Mars
    - Energy on Mars
    - Indigenous life on Mars
- The current technology of space travel
- Environment and society
- Human systems
- Communities and community building
    - What is a community?
    - How would your community be different on Mars?
    - What makes life in your community meaningful?
    - How would you create and represent your Mars community?
    - How can you begin today to make your Earth community better?
- What aspects of an earth community would be taken to Mars?

Endnotes

Robert J. Sternberg, *Successful Intelligence*, New York: Penguin Putnam Incorporated, 1997, p 48.

Robert J. Sternberg, *Successful Intelligence*, New York: Penguin Putnam Incorporated, 1997, p192.

References

Bancroft, W.J. "Suggestopedia, sophrology and traditional foreign language class". *Foreign Language Annals*, 15, 1982, pp. 373-379.

Caine, R.N. and G. Caine. "Understanding a Brain Based Approach to Learning and Teaching". *Educational Leadership*, 28, 1990, pp. 66-70.

Caine, R.N. and G. Caine: *Making Connections: Teaching and the Human Brain*. Alexandria, VA: Association for Supervision and Curriculum Development, 1991.

Diamond, Marian and Janet Hopson: *Magic Trees of The Mind*. New York: Penguin Putnam, Inc., 1999.

Gardner, Howard: *Frames of Mind*. New York: Basic Books, 1983.

Gardner, Howard: *Multiple Intelligences*. New York: Basic Books, 1993.

Gardner, Howard: *The Disciplined Mind*. New York: Simon and Schuster, 1999.

Goleman, Daniel. *Emotional Intelligence*, New York: Bantam Books, 1995.

Jensen, E.P. *The Learning Brain*. Del Mar, CA: Turning Point for Teachers, 1994.

Jenson, E.P. *Super-Teaching*. Del Mar, CA: Turning Point for Teachers, 1988.

Langer, Ellen. *The Power of Mindful Learning*. New York, Addison Wesley Company, Inc., 1997.

Lozanov, G. *Suggestology and Outlines of Suggestopedy*. New York: Gordon & Breach, 1978.

Ostrander, Sheila and Lynn Schroeder. *Supermemory, the Revolution*. New York: Carroll & Graf, 1991.

Schroeder, Lynn and Sheila Ostrander. *Superlearning*. New York: Dell, 1981.

Rose, Colin. *Accelerated Learning*, New York: Dell Publishing, 1987.

Sternberg, Robert J. *Successful Intelligence*. New York: Penguin Putnam Inc., 1997.